



Research paper

Change laboratory as a tool to address moral-ethical tensions in the work of early childhood education professionals

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ABSTRACT

Our study contributes to research on moral-ethical tensions in the work of early childhood educators by applying cultural-historical activity theory, and Change Laboratory (CL) intervention. We argue that studying and resolving moral-ethical tensions cannot be done without addressing the underlying contradictions which pertain to particular cultural-historical context and local practices. This requires a shift of focus from individual educators' perspective to the whole system of their collaborative activity. In result, we identify two historical developments which produce the moral-ethical tensions in educators' work, and we explore how the educators invented expansive solutions to address these tensions in the CL sessions.

1. Introduction

In the work of early childhood educators, moral and ethical issues are central and arise in the educators' relationships with children, families, colleagues, supervisors, pre-service teachers as well as with the broader community, society and its development and when implementing national policies (Durmuş, 2019; Husu & Tirri, 2001; Koc & Buzzelli, 2016; Rodd & Clyde, 1990; Taggart, 2016; Husu, 2001; van Krieken Robson & Martin, 2019). As aptly pointed out by Newman and Pollniz (2001), "All early childhood educators, whether they work directly or indirectly with children and families, are confronted with problematic situations that involve ethical issues needing to be resolved" (p. 40). This is because education is inherently a moral-ethical endeavor, and educators continuously make moral-ethical decisions, weigh up the consequences of courses of action, and relate them with professional ethics, and with values and norms of their work community (Dahlberg & Moss, 2005; Redder, 2018; van Krieken Robson & Martin, 2019). Furthermore, professional work ethics is a central aspect of educators' professionalism, which helps to distinguish educational care from a type of customer care that can be bought from the market (Taggart, 2016). Educators are responsible to those they serve: children, parents, their own community, and to standards and norms of the whole early childhood education system. These various stakeholders pose conflicting, if not even contradictory, demands on the educators. As a result, educators face difficult moral-ethical dilemmas, ones which seldom have predetermined

solutions or could be dealt with without considering what is best for the child (Dahlberg & Moss, 2005; Newman and Pollniz, 2001; Rajala et al., 2022).

Despite moral-ethical dilemmas being an evident part of institutional early childhood education and care (ECEC), research on this topic is still surprisingly scarce. Reviewing the literature, Koc and Buzzelli (2016) found only a few studies focusing on early childhood educators' ethical dilemmas. According to Newman and Pollniz (2001) these ethical dilemmas are relational, emerging mostly from the early childhood educators' relationships with children and their families, as well as with the adult members of their work community and the broader society. Similar results have been also reported by Husu and Tirri (Husu, 2001; Husu & Tirri, 2001; Tirri & Husu, 2002) who interviewed early educators, and found that the ethical dilemmas educators encounter in their work can be traced to competing interpretations about the "best interests of the child" – the foundational value, and the leading principle of ECEC – and related responsibilities. Importantly, they also noted that although ethical dilemmas were common, early educators felt ill-prepared to deal with them and were forced into a decision "even if teachers acknowledged that nobody could "win" by choosing and acting" (Husu & Tirri, 2001, p. 374). Moreover, early educators seldom managed to find more permanent solutions to the dilemmas, leaving many of the underlying issues unresolved (Husu & Tirri, 2001; Tirri & Husu, 2002).

While the previous research on moral-ethical dilemmas is

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illuminating, their approach to the dilemmas appears to be dominantly restricted to examining the individual teachers' perspective. That is, morality and ethical decision making are conceptualized as properties of the individual professional and their relations to the professionals' relevant others in their work. What such an approach overlooks is the historically accumulated and systemic nature of the moral-ethical dilemmas educators face in their work. Similarly, solving these moral-ethical dilemmas in institutional ECEC cannot be done without addressing the underlying, more enduring contradictions which pertain to certain cultural-historical context and local sociocultural practices. In sum, it seems fair to conclude that little is currently known about how decisions and responsibilities concerning ethical dilemmas are addressed, and solutions achieved by teachers and other staff together in institutional ECEC.

To study ECEC educators' moral-ethical tensions, their historical roots, and how are the tensions collectively addressed, we ask:

What historical developments in Finnish ECEC introduce moral-ethical tensions into the educators' work?

What are the potentially expansive solutions the early childhood educators collectively invent to address the moral-ethical tensions?

The aim of our study is to contribute to broadening the scope of the existing research on moral-ethical dilemmas in ECEC by applying cultural-historical activity theory (CHAT) (Engeström, 1987; Leont'ev, 1978), the theory of expansive learning (Engeström, 1987), and Change Laboratory (CL) intervention (Engeström, 2011; Virkkunen & Newnham, 2013). For us, CHAT represents a potential theoretical avenue in this regard as it offers appropriate conceptual and methodological tools to explore collective efforts to address and overcome tensions in work practices and their underlying historically accumulated and systemic contradictions. Moreover, given that the moral-ethical dimensions of various activities are seldom analyzed within CHAT research (see Toiviainen et al., 2021) and that there have been few studies applying the Change Laboratory method in ECEC (Henderson et al., 2023; Nuttall, 2022), we also sought to contribute to existing CHAT research and to illuminate how moral-ethical tensions become relevant in and through the CL intervention, in ECEC and more broadly.

The terms ethics and moral are commonly used interchangeably in everyday parlance, within professional communities as well as in research (e.g., Husu & Tirri, 2001; see also Campbell, 2014). While both terms can have their distinct meanings - ethics often referring to general guidelines to determine right from wrong and morals to responding personal convictions - for our argument in this article, these distinctions are not relevant and we will therefore use the term moral-ethical to refer to both moral and ethical aspects of ECEC practice.

Next, we first describe our theoretical framework. We then introduce the research setting, Change Laboratory intervention, data collection and analyses. Finally, we demonstrate the expansion of moral-ethical tensions, and discuss the findings, and educational implications.

2. Theoretical framework

CHAT focuses on collective, artifact-mediated and object-oriented, historically developing activity systems as its main unit of analysis. The basic elements of an activity system include the subject, the instruments, the division of labor, the community, rules, the object of the activity, and the outcome (Engeström, 1987). The object of an activity is central in CHAT. It gives an activity its meaning and sense, and is what makes one activity differ from another, defining its purpose and the horizon of actions (Leont'ev, 1978). In ECEC, the object of educators' activity and their activity system, the ECEC center, is the child who is to be taken care of in the best possible ways, and their education and wellbeing. When educators talk about their work practices and the education and wellbeing of the child, they talk about the object of their activity. The object of activity is never fixed, but continuously evolving

and contested. The moral-ethical tensions ECEC educators face in their work are ultimately related to the object of their activity system. The concept of object helps to understand not only what people are doing, but also why they are doing it - the object is the true motive of an activity.

An activity system's development is driven by contradictions. According to Engeström and Sannino (2011), "[a]s contradictions are historically emergent and systemic phenomena, in empirical studies we have no direct access to them" (p. 371). However, they can be identified as tensions between the components of the activity system or systems. Tensions can be understood as forces that pull in different directions. For example, in the case of ECEC educators, one such tension could be between the need to meet the multifaceted needs of children and families to serve their best interests, and on the other hand, the need to apply more time to bureaucratic responsibilities. Taking care of bureaucracy forces one to be away from the child group. As pointed out by Engeström (1987) tracking tensions and contradictions in work practices requires exploring and understanding the historical development of the institution, or system, and its practices (the activity theoretical principle of historicity).

"An activity system is constantly working through tensions and contradictions within and among its elements" (Engeström, 2018, p. 16). Whilst facing tensions, people can initiate and seek new solutions, and act to transform and refine their social and material worlds, trying to take control of their life. According to Engeström (1987), these actions can lead to a developmental process conceptualized as expansive learning that potentially leads to an expansion of the object of activity. Expansion signifies a qualitative transformation of an activity, and the reconceptualization of its object; expansion involves learning something that does not yet exist (Engeström, 1987). According to Toiviainen and others (2021), expansion of the object can be realized in six dimensions: social-spatial, material-instrumental, moral-ethical, political-economic, personal-professional and temporal-developmental. In our study, we were interested in the moral-ethical dimension of expansion and, following the lead of Engeström (2018) and Toiviainen et al. (2021), we conceptualized the moral-ethical tensions as stemming from responsibilities and decision making in relation to the education and wellbeing of the child, the object of ECEC activity. In our case, this meant analyzing who is responsible for children's care, and how the responsibilities regarding it are negotiated and decided.

3. The settings

Our study was conducted in a large city located in southern Finland. The city's curriculum, which is based on the obligatory National Core Curriculum of Early Childhood Education, guides the work of all ECEC centers in the city. The main stated aim of the city's ECEC is to offer quality education that promotes equality and prevents exclusion. According to the city's ECEC curriculum, the education and wellbeing of the child should be a primary consideration in the planning, organization, and development of ECEC. However, these laudable aims are not always realized in practice as research shows that practices and discourses at different levels of the Finnish ECEC system also contribute to the reproduction of inequality and exclusion based on race, ethnicity and social class (Lappalainen, 2006; Mikander and Mansikka, 2024; Rajala et al., 2023).

Hamlet (pseudonym), our case ECEC center, is located in one of the city's suburbs. It is a public ECEC center with six mixed-aged groups, and the children's ages vary from two to six years. One of the groups is an integrated group with 12 children between the ages of three and six, five of whom are in need of intensive or special support. Work responsibilities and local decision making are organized into multi-professional teams, educators with a varying combination of professional qualification levels and job descriptions: special ECEC teachers, ECEC teachers, caregivers, and assistant staff. Hamlet is a culturally and linguistically diverse setting with most children belonging to one of

several nationalities or ethnic groups and learning to speak Finnish as their second or third language. The children's guardians and the Hamlet educators seldom share a language which means that communicating about daily issues requires considerable effort from Hamlet's personnel and from the families.

Hamlet is one of the centers in the city that receives 'positive discrimination funding'.

Finnish officials use the term 'positive discrimination' (PD) funding to refer to support and allowances paid to ECEC centers based on the educational status and income level of children's parents, and the number of immigrant families in the area. Since 2009, the city has invested in the prevention of exclusion with positive discrimination funding. From the outset, support has been targeted directly at work with children and has been aimed at long-term solutions. To meet the children's needs, ECEC centers with more challenges receive more resources than the rest. This funding has been applied to increase the number of ECEC staff, especially the proportion of ECEC teachers and the recruitment of special ECEC teachers, particularly in those residential areas where the risk factors associated with the learning and development of children can be seen. The PD funding policy breaks from the universalist approach typical to Finnish education policy as one of the first policies to target existing inequalities explicitly.

4. The change laboratory method

Solving moral-ethical tensions is challenging and may require questioning the taken-for-granted practices, and "breaking away from the prevalent premises and looking at the situation from another perspective, the perspective of another actor or activity, or of another idea" (Virkkunen & Newnham, 2013, p. 81). As stated by Virkkunen and Newnham (2013), opportunities for new ways of working are not given, but they are created and articulated by those whose lives are at stake. Change Laboratory intervention (Engeström, 2011; Virkkunen & Newnham, 2013) can be a tool to assist the transformations that are required, and to overcome the tensions identified.

The Change Laboratory (Engeström, 2011; Virkkunen & Newnham, 2013) is an intervention method for formative interventions, based on the theory of expansive learning (Engeström, 1987, 2011). In a CL provoked and supported by researcher-interventionists, the participants analyze tensions, bottlenecks and troubles in their local work activity, and search for ways to transform the current practices. The aim is to construct new tools and models, and to put them on trial. To facilitate analysis and to solve the challenges, researcher-interventionists introduce mirror material which represents participants' experiences from their work practice, especially problem situations, but also novel solutions. Mirror material can be videotaped work episodes, interviews, feedback from stakeholders (like parents), which enable the analysis of problems in the coordination and collaboration between actors (Engeström, 2011; Virkkunen & Newnham, 2013). Often researcher-interventionists introduce activity theoretical conceptual tools to the participants, such as the triangular models of activity systems (Engeström, 2011; Virkkunen & Newnham, 2013). The CL intervention process ideally generates expansive learning and can lead to a developmental process conceptualized as expansion, and to the formation of a new, expanded object and pattern of activity (Engeström, 2011; Virkkunen & Newnham, 2013), known as ascending from the abstract to the concrete. According to Engeström and others (Engeström et al., 2012, p. 288), "ascending from the abstract to the concrete is a method of grasping the essence of an object by tracing and reproducing theoretically the logic of its development, of its historical formation through the emergence and resolution of its inner contradictions". A methodological implication of this principle is that the meanings of theoretical concepts significant for the developing activity systems are enriched and elaborated with the practitioners in the change laboratory sessions.

Implementing the Change Laboratory intervention in an ethical way, we applied the following practices: 1) In accordance with the

contemporary ethical guidelines of the [Finnish National Board on Research Integrity, 2019](#), informed consent was sought from parents, ECEC practitioners, the directors of the ECEC settings, and municipality officials. For child participants, their legal guardians' informed consent was obtained; 2) Negotiating the mandate for the CL intervention in a dialogue with the ECEC regional manager and Hamlet's principal and educators: For Hamlet's staff, we described CL as a collective process in which the challenges of work activities would be explored and solutions would be sought; 3) Although the staff were not involved in actual analysis of the CL data in this paper, they were closely involved in producing the analysis and hearing the researchers' interpretations of previous Laboratories as part of the Change Laboratory work.

5. Data collection and analysis

We collaborated with Hamlet from August 2018 to June 2020. Our contact with the center came about because of our previous contacts with the ECEC regional manager who is responsible for the area Hamlet is located in. In the negotiations with Hamlet (first with the principal, and then with the educators), it was agreed that we would be allowed to participate in and observe daily work practices and conduct staff and parent/guardian interviews. Two of us visited Hamlet for about nine months, for two days a week (rotating shifts) observing Hamlet's daily practices and making field notes. (Originally, we were interested in how empathy and compassion are acted on at Hamlet, but during the fieldwork, based on empirical observations, we expanded our interest to include moral-ethical issues). We also conducted 16 staff interviews, and four parent/guardian interviews. The guardians were not present in the CL sessions, but permission was granted to use the parent interview data anonymously as part of the CL sessions. Interviews were conducted face-to-face or by telephone and were meant to serve multiple research interests. To understand the historical developments of Finnish ECEC and Hamlet, we reviewed the research literature, and a variety of ECEC documents. Moreover, at the outset we agreed with the Hamlet educators that we would prepare and conduct a CL intervention in which the ethnographic data, and staff and parent interviews would be used as 'mirror' material, for reflecting on the work practices. To create mirror material, we selected samples from the data (educators's and parents'/guardians' interviews, observations) that represented challenging situations and disturbances in work practices.

During 2019 and 2020, we facilitated five 2-h CL sessions, with between 9 and 11 educators and four researchers in each session. The number of participating educators varied due to sick days and other impediments to their availability for the CL sessions. The sessions were held in Hamlet's gym hall, the only room in the building which accommodated all the participants and were audiotaped (some participants felt uncomfortable being videotaped). The audio data - interviews and CL sessions - were transcribed by a professional transcriber. The Finnish transcripts of the excerpts presented in this paper were translated into English by us. The research period and data collection are represented in [Fig. 1](#).

Next, we describe the analytical process in more detail from the perspective of research questions.

5.1. The analysis of historical developments of Finnish ECEC

Moral-ethical tensions have their culturally and historically specific configurations. Each community develops its own specific ways of understanding and constructing moral-ethical responsibilities and tensions (Engeström, 1987; Virkkunen & Newnham, 2013). The first step of our analysis was exploring the literature, documents (such as curricula, legislation, demographic documents concerning ECEC), interviews and the data from the CL sessions to understand which of the historical developments in Finnish ECEC that had consequences for the subsequent moral-ethical tension in the educators' work at Hamlet.

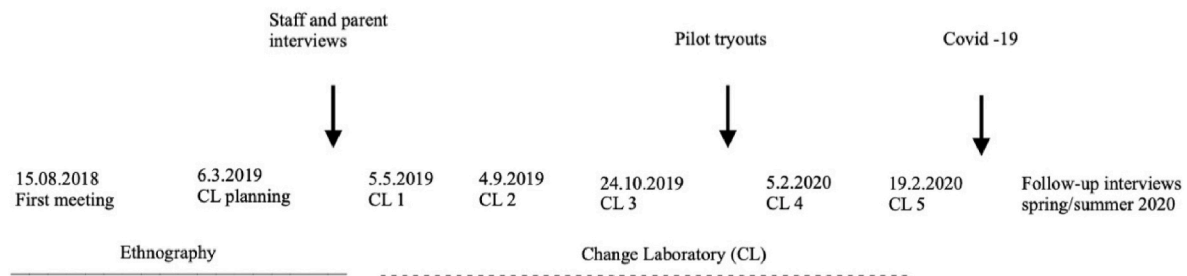


Fig. 1. Here: Summary of research period and the data collection.

5.2. The analysis of change laboratory data and interviews

After tracking the historical developments of Finnish ECEC (the principle of historicity), we analyzed the Change Laboratory data and interviews. This data analysis proceeded as a series of iterative cycles with the help of the research questions and the production of various intermittent data representations to answer them. First, we took a rough overview of all the data. Then, keeping in mind the research questions, we read the CL and interview transcriptions and ethnographic notes several times to learn more and refine our understanding (Engle et al., 2007; Jordan & Henderson, 1995). In a dialogue with the data and theory, and especially with the concepts of contradiction and tension, we scrutinized and identified data episodes that represented the moral-ethical tensions, i.e., episodes in which educators discussed responsibilities and decision making. From the CL data, we then focused on the potentially expansive solutions to these tensions, episodes which the educators attempted to address them and to find new conceptualizations and practices that would break away from the current situation.

6. Findings

In sections 6.1 and 6.2, we share our findings. We illustrate them with examples and excerpts from the interviews and CL data.

6.1. Moral-ethical tensions stemming from historically changing Finnish ECEC and consequences for educators' work at Hamlet

Our first research question concerns the historical developments in Finnish ECEC producing moral-ethical tensions to educators' work. These developments and tensions are the following.

- 1) Demographic developments. Tension between the responsibility for responding to the diversifying needs of children and families vs. limited resources that are available.
- 2) Policy developments. Tension between the increasing responsibility of teachers vs. the collective responsibility of the whole team of educators that is needed.

The historical developments are also part of Hamlet's history. They are important in understanding the moral-ethical tensions manifested in Hamlet's daily practices, and were described and reflected by educators in interviews, and during CL sessions.

In the text below, we explore these historical developments, and the moral-ethical tensions they produced for Hamlet's educators. The two developments our historical analysis revealed concern the moral-ethical issue of responsibilities: who is responsible and who decides; in other words, who is responsible for the children's care, and how the responsibilities are negotiated and decided at Hamlet.

6.1.1. Demographic developments. The moral-ethical tension between the responsibility for responding to the diversifying needs of children and families vs. the limited resources that are available

Over the course of the last 30 years, the area which Hamlet serves has gone through significant demographic developments. As with many other Nordic countries, one of the major contributors to this development has been the increase in immigration to Finland. Although Finland's foreign-born population is still small by international standards, its growth has been amongst the fastest in the OECD countries (OECD, 2018). Given the aim of the Finnish ECEC services to be inclusive and how legislation directs the Finnish education system towards equality and social justice, this development has brought with it also new requirements to the ECEC services and practices (Lastikka, 2019). For example, the 75% of the children at Hamlet who speak languages other than the two official languages in Finland – Finnish or Swedish – as their first language, are allotted extra support which considers their experiences, perspectives and needs. According to the Finnish National Agency for Education (2023), the Finnish or Swedish language skills of plurilingual children should be supported, as well as the development of their linguistic and cultural identities and self-esteem being facilitated. Moreover, because these children's parents and the ECEC often do not share a language, interpretation services are needed quite often.

Alongside immigration, the demographic development of the area has also been impacted by the increased diversification of families and their children. As the Finnish ECEC service is universal by design, the gradual gentrification of the area, which earlier housed families of low socio-economic status, has meant that Hamlet now serves families from a broader range of socio-economic statuses. The same group might have children whose parents are struggling to survive amid financial trouble or alternatively who are overworked in ways which impact the care needs of the child. Moreover, over the years, the number of children who are identified as being in need of special education services has also increased at Hamlet. Children need special support for challenges such as developmental delays, learning disabilities, speech and language disorders, behavioral issues, and physical disabilities. At the national level the identification and documentation of special needs in Finnish ECEC has developed over time. Consequently, children in need of special support are more quickly identified, and they should promptly be provided with the services they need (Pihlaja, 2022). Simultaneously, the organization of multi-professional work related to the identification of children's special needs and provision of support has become the responsibility of local ECEC providers, producing feelings of loneliness and hopelessness for professionals in situations in which a child needs special support (Äikäs et al., 2023). All these demographic changes, immigration, diversification of families and their children, and the need for special education services, require increasing scheduling, documenting, and quantifying children's care.

While these demographic changes have also been identified as having an impact on the conditions of the ECEC service at the national level (Repo et al., 2019), their impact is more intensive in growing metropolitan areas in Finland. In our data, the educators at Hamlet reported feelings of anxiety about not being able to provide the children with

adequate support for their learning, development and wellbeing, and often described their task of catering for the variety of children's needs as overwhelming. As described by one of the educators:

“Children have a lot of needs, a need for attention. Lack of [Finnish] language skills and problems with social skills often create really demanding situations in everyday life ... Situations in families can be really difficult ... You want to support children, you want to support parents too, you want to support each other, but the reality is that you just can't, and you feel anxiety” (Mary, CL session 1, turn 176).

What made the situation at Hamlet particularly challenging was that the support resources that were needed were not always available or were limited.

“Even if the law says that you should get the support for the children you need right away, it is not the case, at least not in our area” (Ava, CL session 2, turn 372).

Whilst decisions are made, the things that matter most to educators in professional and moral-ethical ways, are not necessarily the same as what matters to senior decision makers. At Hamlet, there was a shared feeling that city-level decision makers did not fully recognize (or admit) the tangible consequences of the demographic changes in ECEC on Hamlet. From Hamlet's point of view, the policy makers' decisions (or undone decisions) have had an extensive impact on Hamlet's everyday life. Educators at Hamlet thought that the decision makers were also responsible for what happens (or does not happen) at Hamlet. This is illustrated by the next excerpt:

“The resources that are promised are not always available or the decisions/statements do not come on time ... you get less than what you have been promised ... because someone, a higher authority who has never seen that child or will ever see that child, has decided ... do we want to start from the fact that the child gets the best that she/he needs and deserves or what we can give as a minimum” (Tina, CL session 4, turn 180).

The second historical development our historical analysis revealed was policy developments concerning the division of responsibilities between teachers and the whole team of educators.

6.1.2. Policy developments. The moral-ethical tension between the increasing responsibility of teachers vs. the collective responsibility of the whole team of educators that is needed

In addition to demographic changes, early childhood education in Finland has been preparing for and undergoing large-scale policy reforms in recent decades. One such reform has been moving the administration and control of ECEC to the Ministry of Education and Culture from the Ministry of Social Affairs and Health in 2013. The transformation highlights a trend towards an integrated education and schooling system in which ECEC and school education form a continuum in terms of operation, administration as well as content (Kopisto et al., 2014). In 2018, Finland legislated for a new Act on Early Childhood Education and Care.

The new ECEC Act connects the teachers' responsibilities more firmly with teacher professionalism and academic qualifications. Moreover, and notably for our argument, the new Act introduces a shift in the division of labor between the ECEC teachers and other ECEC educators by adding more responsibilities and decision making to the teachers, especially on leadership and pedagogical issues. Teachers are the ones who are primarily responsible for children's education, planning and evaluating activities, and for drawing up and assessing the child's individual early childhood education plan. Teacher's tasks also include identifying the child's possible support needs, and considering how the child can be supported. Before the new legislation, these responsibilities were more evenly distributed among all educators.

Moreover, the new National Core Curriculum for Early Childhood Education and Care, released in 2019, has a strong pedagogical

emphasis, stressing the educational nature of ECEC services, and also emphasizing the teachers' role as pedagogical experts and leaders. The changes from one ministry to another, the new Act, and the new curriculum signify the transformation from social policy to education policy, stressing children's right to education, instead of considering ECEC primarily as a service for the family. In CHAT terms, this can be seen as a change in the object, and the motive of the work in ECEC institutions, shifting the emphasis from care for children to their education.

At Hamlet, these historical policy changes have had real consequences for the responsibilities and division of labor between teachers and other personnel. In CHAT, the division of labor is a social mediator of an activity, and it refers to the distribution of responsibilities between members of the community engaged in the activity (see Leont'ev, 1978). Following the new ECEC Act, teachers are the ones who are mainly responsible for pedagogical leadership and the 'paperwork', such as pedagogical planning, and drafting children's individual ECEC plans (the plans are required by the new Act) and doing the recordings and registrations to secure children all the pedagogical support they need. This kept the teachers increasingly out of the child group and left the responsibility for making decisions about what is pedagogically best for the children in the day-to-day life of the group with the rest of the staff. In effect, the policy developments produced a tension between the increasing responsibility of teachers vs. the collective responsibility of the whole team of educators that is needed. One of the teachers described this tension in the following way:

“The fact that a particular person, namely an early childhood education teacher, is responsible for all of that, the bureaucracy, and the fact that you are the one who contacts other professionals whether it's a pre-school child or not, you contact the others, is burdensome because of that there is not time for all the threads so then you are unable to communicate to the others” (Anja, CL session 4, turn 180).

What Anja well articulates in the quote above is how the changes in legislation and policy, and the way in which these changes were put into practice at Hamlet, led to a situation in which the way in which the children should be cared for could not be communicated to everybody engaging with the children. In our understanding, what was burdensome was the fact that the administrative work required from the teacher to secure the resources needed by the children also hindered the teachers in communicating with others about their knowledge about what was best for the children.

Overall, in CHAT terms, these two historical developments and moral-ethical tensions refer to the fragmentation of the object of activity, the education and wellbeing of the child. As in Anja's quote, these tensions are often felt as personal, but they are also systemic; personal crises strongly connected with tensions in the collective activities. We considered these tensions to be a potential driving force for the development of the work practices at Hamlet. At Hamlet these tensions have slowly turned into a phenomenon that has been noticed but pushed around rather than used for transformation. This is not to say that the educators had not tried to solve these problems. However, as reported in previous studies (Husu & Tirri, 2001; Tirri & Husu, 2002), educators are not always well-prepared for addressing the moral-ethical tensions they have in their work, and many of the tensions are left unresolved.

6.2. Change laboratory to assist the moral - ethical expansion of work practices

To answer our second research question, “what are the potentially expansive solutions the early childhood educators collectively invent to address the moral-ethical tensions”, we describe how educators at Hamlet, working with Change Laboratory, developed their work practices challenged by the historical developments in Finnish ECEC. We describe the tools they created to take and share responsibilities to expand the moral-ethical dimension of their activity for the education and wellbeing of the child.

To stimulate the discussion in CL, we selected samples of challenging work practices from the interviews and observations and presented them to the participants as mirror data. Further, to support the discussion and analysis of Hamlet's current challenging situation, we introduced activity theory concepts to help the educators to view their work and its problems from a systemic perspective. In every session, an educator was chosen to take notes.

The aim of the first CL session was to get to know the participants, and introduce them to the method, exchange ideas about expectations and wishes, and discuss and decide on the schedule for the future sessions. The first and second session focused on actual-empirical analysis, this is, to seek to understand and explain the current challenging work situation, and its historical roots and developments at Hamlet. Characteristic of sessions one and two was emotionally loaded discussion about the 'sense of inadequacy' (as the educators called it) - not being able to give children as much as you would like to. Fundamental to making progress in CL was that the educators were able to move from emotionally laden actual situations to intellectual analysis of the work practices. As stated by Virkkunen and Newnham (2013) "a purely intellectual analysis without emotional involvement lacks the motivational power and dynamic necessary for the practitioners to work out a solution to a difficult problem and change the current practices (Virkkunen and Newnham, 2013, p. 22). As researcher-interventionists, we followed the instructions given by Virkkunen and Newnham (2013). It is the responsibility of the researcher-interventionist "to turn the emotional involvement into propulsion of intellectual analysis by turning the discussion in the direction of the systemic causes of the problematic situation instead of moralizing and blaming individuals, which stops the learning process" (Virkkunen & Newnham, p. 82).

To address the moral-ethical tensions – a) the responsibility for responding to the diversifying needs of the children and families vs. limited resources that are available, and b) the tension between the increasing responsibility of teachers vs. the collective responsibility of the whole team of educators that is needed – and to develop the work practices, the third session was pivotal. It changed the perspective from which the work practices were discussed and analyzed. The session began with the researcher-interventionist's suggestion to the educators to create and explore pilot tryouts to develop their work practices, to move from the abstract to the concrete in CHAT terms.

"And now I say to everyone that the idea of this meeting would be a bit like going from the abstract to the concrete, and thinking about things that teams can do, they can be non-teams, or it can be that teams can cooperate. Let's see what happens here. Start somehow to pilot test some solutions, new ideas and how things can be done. And we only have the next big lab in January. In between there are a couple of months, a couple of periods of three months, the idea is that the teams will then start working and we researchers will then document what you are doing and then we will reflect on them, and then reflect in January on what has been done and, aren't there any similar seeds that you could extend to all teams or, is there something like that that would come up that we would start working on together or ... This is the idea that we don't know in advance what will happen, but that the thing is sort of, here we learn something that doesn't exist yet. That's the idea of this method" (Researcher, session 3, turn 1).

This researcher-interventionist's turn, introducing the idea of 'pilot tryouts', creates a horizon for expanding collaboratively the moral-ethical dimension of the work practices. He also stresses that we are moving into unknown territory, and there are no ready-made solutions, no one is going to give out facts on how to master the future. Statement that "seeds that you could extend to all teams", can be interpreted as a suggestion to move from individual responsibility towards developing new tools for shared activities. The original idea of the pilot tryouts came from the educators. It was based on the first two CL sessions, at which the mirror data was discussed.

Following the researcher-interventionist's opening, educators decided to form six groups (educators who work in the same child group), each responsible for developing the focus, and the content of one pilot tryout. After a whole group discussion, the six pilot tryouts were named and written on the whiteboard: Play area redesign; Tools for pedagogical communication; Child's support trajectory; Preschool to school transition support; Equity plan; Time travel -project. The pilot tryouts can be considered to be new instrumentalities (Engeström, 2011; Virkkunen and Newnham, 2013), aimed at producing expansive solutions to the two moral-ethical tensions.

Below, we present two of the pilot tryouts, 'Child's support trajectory' and 'Tools for pedagogical communication', in more detail. We show how they were intended to create better care for the children, and in part, address the historical developments and tension presented above. These two pilot tryouts were selected for in-depth analysis because they are the ones that most clearly represent potentially expansive solutions, and the ones that were taken into use by the whole Hamlet community.

6.2.1. Pilot tryout 1. Child's support trajectory to promote moral-ethical expansion of the tension produced by demographic developments – the diversifying needs of children and families vs. limited resources that are available

Although the educators felt that they did not have control over the situation or the decisions of the city, the CL gave them an opportunity to develop the local practices and rethink their responsibilities, and to create expansive solutions to the moral-ethical tensions stemming from the tension between diversifying needs of children and families and the limited resources that are available to them. This process started in CL session three when the idea to have a local child's support trajectory was developed. The support trajectory is a notion invented by the educators and it describes the procedure, step by step, for moving forward when the need for support is observed. The idea of the trajectory was brought up the first time by Diana, one of the educators:

"We would need a trajectory at our center and, for example, a child support trajectory in the orientation folder [a shared computer file containing information for new employees]. How to proceed step by step in different situations. It is essential to clarify how it progresses in this building, not on the city's education division general level, but how to proceed in this house with the people in the house. Who to contact and how, at any stage of the support process and when, for example, the team's own pedagogical tools and forms of support are not enough, and help is needed in everyday life" (Diana, session 3, turn 159).

What is significant in Diana's suggestions is the way she positions the idea of the support trajectory as a better tool for the educators than the general level of guidance provided by the city. Furthermore, she also suggests that the tool could be handy especially during orientation of new workers unfamiliar with how things are done at Hamlet. Overall, her suggestion highlights from the ECEC staff's perspective, how the multifaceted needs of the children call for the capacity to act across professional boundaries and work in collaboration with other professions such as psychologists, and social workers. The child's support trajectory could serve this purpose giving advice "who to contact and how".

Between sessions three and four, the child's support trajectory was further examined and developed. The preliminary model of it was introduced in the fourth session. In the following excerpt, one of the educators refers to the first outline of the trajectory:

"Yes, so we have made a little outline of the child's support trajectory, how it would be, how simple it would be, and we were just thinking that, of course, when the concern about the child comes up and what happens after that, what are the stages and what happens after that. And sure, it may look a little messy, but it's yet a little messy" (Pam, session 4, turn 31).

The outline of the trajectory tentatively describes the process from

observing the concern to the subsequent stages of activities to support the child. In session five, the idea of the child's support trajectory developed from being a fixed tool to a dynamic and continuously evolving tool that on one hand could be applied to serve children's needs, but also function to orient new employees, and to mediate the communication between the educators and parents. The use of the child's support trajectory could be expanded for multiple purposes. As described by two educators:

"If a new employee comes, it's for orientation. And no, that information isn't scattered here and there and you don't "well, we'll ask there" and then it advises you "well, here, I don't know about that, we'll ask from there" ... I think it should live all the time, isn't it the document to be changed like that, you can edit it whenever you think of how the process goes. It wouldn't stop here" (Pam, session 5, turn 117).

"It also makes it easier, to show immediately to the parents that we have these potential collaborators and this range of professionals" (Kathy, session 5, turn 297).

In session five, the teams agreed on the importance of the child's support trajectory and that it could be used by the whole building. With this, Hamlet's decision to create the child's support trajectory and use it in each group, can be understood as an expansion to move from the current, slightly unclear loci of responsibilities, towards a shared form of responsibility, in a way which addressed the tension between the diversifying needs of children and families vs. limited resources that are available. The expansion clarifies who is responsible and who decides at the local level. Without the child support trajectory, educators could be left to wallow in the increased needs of children and families and inadequate resources. The tool guides educators to act and make local decisions for the education and wellbeing of the child, and to proceed with identified needs in a multi-professional manner. The tool creates collective responsibility rather than leaving it up to one person to figure things out.

Educators considered unethical the waiting time required for the special needs application process before the children were entitled to receive the special education resources, and they thought that the child has the right for pedagogical support and special education as soon as concerns arise, without having to wait until the official special needs decision has been completed. Time spent on bureaucracy went against their beliefs and values about special education and children's right for individual support.

6.2.2. Pilot tryout 2. tools for pedagogical communication to promote moral-ethical expansion of the tension produced by policy developments – the increasing responsibility of teachers vs. the collective responsibility of the whole team of educators that is needed

Administrative transformations in Finnish ECEC appear to have created a need to have more time for pedagogical discussion, and to reorganize the work and responsibilities. A tangible step to enhance the pedagogical communication and decision making within the team was the creation of the *Notebook for shared pedagogical discussion*, that is a non-digital, paper notebook. The function of this *Notebook* was explained by one of the educators in the fourth session. It is notable that she stresses the collective responsibility to use the tool for keeping everybody aware of what is happening in the team:

"And then we have this 'Notebook for shared pedagogical discussion', which everyone in our team is responsible for, and which contains mainly children's issues. Thus, if something happens during the day it is written down there, so that the evening shift is up to date with what has happened. And another way around, the evening shift writes a memo so that the morning shift knows what has happened in the evening shift. Then it is easier to interact with the parents, because if the parents return to the morning matters, and if the morning shift does not know what happened during the evening

shift, then there is a tool for reading the day's news from child to child. And we also record in the notebook for shared pedagogical discussion if a professional calls about a certain child. So, it is also recorded in the notebook that is always in the locked closet. And that is good for everyone because it is the responsibility of each team member to read that book and write those things there" (Kathy, session 4, turn 16).

In session five, the function of the *Notebook for shared pedagogical discussion* was further expanded, to communicate for example, about the division of labor.

"We will always record (in the Notebook for shared pedagogical discussion) what we will be dealing with in the team ... when we start talking there will be ideas or issues or division of labor. Then you can immediately attach them to the upcoming team templates, so that you know what to deal with next or in the next team meeting. Before, they were just on the corner of the calendar. But when they are there, then you can also go back and see what has been dealt with in the team, if we have any observations about children ... so that we always know at what stage something has been dealt with in the teams" (Kathy, session 5, turn 277).

The *Notebook for shared pedagogical discussion* offers a platform on which to communicate the division of responsibilities between the team members, and also between work shifts. The '*Notebook for shared pedagogical discussion*' represents a means for creating and making visible who is responsible for what, and how knowledge and responsibilities are shared in the flow of everyday work practices. It is a collective responsibility to use the '*Notebook for shared pedagogical discussion*' and make notes and read the notes. The notebook expands the infrastructure for communication between educators, and between educators and parents/guardians, and with other professionals. From the CHAT perspective, the '*Notebook for shared pedagogical discussion*' works as a "how-artifact" (Engeström, 2008) that is used to guide and direct socially shared responsibilities and activities.

Originally, the *Notebook for shared pedagogical discussion* was developed to serve only one team, but when it was introduced and discussed in the fourth CL session, it was well received by the other teams, and it was decided to put it into the shared digital forum for everyone to have access to it. Crossing the team boundaries and mobilizing the '*Notebook for shared pedagogical discussion*' from one team to other teams builds continuity between teams and their practices. It is supposed to expand the interactions of the children's care across institutional boundaries and enhance shared responsibility for the coordination of multiple needs and resources of children.

7. Discussion

Being an early childhood educator is inherently a moral-ethical endeavor. To ensure the education and wellbeing of the child educators are constantly confronted with complex situations that involve thinking about responsibilities and making moral-ethical decisions. Previous research (e.g., Husu and Tirri 2002) has investigated this decision making and the moral-ethical dilemmas ECEC teachers face mostly from an individual teacher perspective. Hence, it has had little to say about the systemic and historical nature of the moral-ethical tensions ECEC teachers face in their work and how they could be addressed collectively. In this article, we have attempted to address this gap by conceptualizing and analyzing the moral-ethical dilemmas from a cultural-historical activity theory perspective. Specifically, we analyzed how the historically accumulated moral-ethical tensions were addressed by the educators with the Change Laboratory method and the expansive solutions created through it.

Our analysis shows that the moral-ethical tensions early childhood educators face in their work are deeply rooted in the historical developments in Finnish ECEC. Demographic and policy developments

that have taken place alongside growing responsibilities and hard to secure resources have meant that the old ways of working and dealing with the moral-ethical tensions are no longer successful. New ways and tools to share responsibilities and make decisions, and to take future-oriented actions were needed and created through the CL method.

The aim of Change Laboratory intervention is to generate expansive learning and to lead to a new, expanded object and patterns of activity. However, in the case of Hamlet, instead of conceptualizing a new object, the educators worked to re-establish the existing, but fragmented object - the education and wellbeing of the child - by creating new tools and joint practices. In this sense, the CL worked as a productive methodology to address the moral-ethical tensions in the work of early childhood education professionals.

In CHAT, contradictions are important sources for transformations and development. They are systemic, evolve over long periods of time, but can only be detected and made visible as tensions between the components of an activity system or various systems. In our study, the tension between the responsibility for responding to the diversifying needs of the children and families vs. limited resources that are available, suggests a contradiction between the object of activity and the division of labor. It appears that the division of labor regarding the children's early support was not clear and hindered collaboration between the educators. Furthermore, the findings suggest further contradictions between Hamlet's local activity system and the rules of the wider, district-level and city-level activity systems, which did not allow for the adequate redistribution of the resources. In other words, enough resources were not allocated to deal with the needs of the children in Hamlet although the object would require this and even though there are enough resources outside the Hamlet, at least theoretically.

The second tension we identified was the tension between the increasing responsibility of the teachers vs. the collective responsibility of the whole team of educators that is needed. This tension similarly indicates a contradiction between object of the activity and the division of labor, who decides and who is responsible and for what. Working on these tensions in the CL, Hamlet's educators created expansions to resolve the current inner contradiction within the activity system. The two expansions analyzed, 'Child's support trajectory', and 'Tools for pedagogical communication', were seen as central in handling the tensions at the local activity system level.

Interestingly, the tension between the diversifying needs of children and families vs. limited resources that are available, has also been found in other studies of care. For example, Engeström and Sannino (2011) analyzed municipal home care services for the elderly and found that one of the recurring tensions was between the proclaimed services officially available, and the actually limited capacity to provide those services. These shared findings raise the question of how common and persistent this tension is in all fields of care.

Overall, our results suggest that in contrast to top-down methods of promoting institutional change, educators are an important catalyst of the change as they are the best experts of their work. The two expansions we analyzed could be seen as moral-ethical expansions of the ECEC educators' work (Toiviainen et al., 2021) in which all educators are involved in creating tools to clarify and enhance joint responsibility for the education and wellbeing of the child, rather than each individual educator being responsible for the care. What explains this result in part was the surprising unanimity and a shared understanding of the challenges of work practices as well as the need for change at Hamlet. For Change Laboratories, such consensus is rare as the method is designed to bring out multiple voices to meet and agree, but also challenge each other and come into conflict (Engeström, 2011; Virkkunen & Newnham, 2013).

As our study shows, breaking away from systemic and historically accumulated tensions is not easy, and expansions do not occur automatically. Although Change Laboratory has general methodological sequencing and principles which the researcher-interventionists are expected to follow and which aims to facilitate change, there are no

simple rules or procedures for how it proceeds. Every CL is unique, and the challenges participants bring up in the sessions cannot always be predicted. Our observations in Hamlet's CL sessions revealed that despite the researcher-interventionist's support, the discussion in CL sessions turned in unexpected directions, and topics and challenges were discussed back and forth. It is not uncommon for there to be periods in sessions when participants also talk off-topic. Moreover, achieving expansion, which is the aim of the Change Laboratory, is not a straightforward and self-evident process or guaranteed at the outset. Rather, if any expansion happens it is the result of negotiations between multiple, and sometimes competitive and contradictory voices.

We understand that one CL intervention, and developed expansions are not enough to deal with the persistent historical roots of the contradictions and tensions. As stated by Newman and Pollniz (2001, p. 39): "Issues relating to ethical judgement are multidimensional and are influenced significantly by the rapidly changing socio-economic and political climate in which we live and work". However, despite these challenges, we believe that the CL intervention, and expansions we have reported here carry potential for further developments in Hamlet's activities in the long run.

Furthermore, we acknowledge that Change Laboratory is itself an activity system with its own moral and ethical contradiction and tension (Henderson et al., 2023; Nuttall, 2022), although it is beyond the scope of the study to analyze the topic further. For example, the division of labor and the rules of CL might create moral-ethical tensions between researcher-interventionists and participants. To develop CL methodology further and acknowledge the moral-ethical dimension of research practice, these issues are worth exploring.

Currently in ECEC, there are no sufficiently clear criteria for "the best interests of the child". Applying the CL method, it would be interesting to study how "the best interests of the child" is understood and interpreted? Where, when and how it is connected to decision making and daily practices? When is it used to justify different policies and practices? When and how is it only used as a rhetorical device?

8. Conclusion

Our study contributes to research on the moral-ethical tensions early childhood educators face in their work. Applying cultural-historical activity theory, and Change Laboratory intervention methodology, we have demonstrated how these tensions can be potentially resolved by understanding and jointly examining the cultural-historical context, sociocultural practices, and their enduring historical developments and underlying contradictions. In our study, Change Laboratory intervention assisted educators in creating expansive solutions to address the tensions. However, one of the limitations of our study is that currently, we do not have strong evidence about the sustainability of the expansions at Hamlet: will they last or is it their destiny to fade away.

Our study suggests that local transformations are not enough. Importantly, although the educators at Hamlet were able to create local expansions, our results also indicate that they could not break away from the city-level frame fully. Given that the final decisions about funding or other resources are made by the city at the top level, making in-house developments is insufficient. Changes in upper-level decisions are also needed to transform the current situation, which the educators experience as unbearable. It appears that the locally experienced moral-ethical tensions can be traced to a much deeper contradiction in society between the rights of all citizens and the resources made available to realize the rights of historically marginalized citizens, which can be considered to be a deep moral-ethical failure on the part of society. In future studies, such transformations could be fostered via Change Laboratory work between the ECEC staff, the parents, the district leadership and city-level decision makers.

CRedit authorship contribution statement

Lasse Lipponen: Conceptualization, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Writing – original draft, Writing – review & editing. **Antti Rajala:** Conceptualization, Formal analysis, Investigation, Methodology, Writing – original draft, Writing – review & editing. **Jaakko Hilppö:** Conceptualization, Formal analysis, Investigation, Methodology, Writing – original draft, Writing – review & editing. **Annukka Pursi:** Formal analysis, Investigation, Methodology, Writing – original draft, Writing – review & editing.

Declaration of competing interest

No potential conflict of interest was reported by the author(s).

Data availability

The data that has been used is confidential.

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